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ABSTRACT

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# An Exploration of Paradox: High School and College Students' Self-Reported Motivations for Smoking

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Abstract

This study explored experiential factors underlying cigarette smoking by administering a questionnaire consisting of the Rosenberg Self-esteem scale and items assessing smoking habits and motivations to 115 college students and 108 high school students. Directionally adjusted items were totaled to create summary scores for the four hypothesized motivational factors underlying smoking. Paired sample t-tests indicated the presence of significant differences between all possible factor combinations ($p<.05$). The rank-order of these factors, in descending order were: relaxation effects, competence effects, stimulant effects, and image effects. A median split was used to divide participants into high and low self-esteem groups. Those with low self-esteem were more likely to report concerns about image as a reason for deciding to smoke ($t = 2.09$, $df = 39$, $p<.05$). Examination of nonsmoker motivations revealed significant differences between the primary reason cited, health concerns, and all other reasons ($p<.001$). Nonsmokers rated the following factors as similarly determinative of their decision to refrain: "don't want to lose control or become hooked", "don't want to disappoint people I care about", "don't like the taste", "against my values", "interferes with my athletic activities", "people in my family have had problems, (i.e., abuse, death)", and "costs too much." These findings may facilitate the construction of more effective anti-smoking interventions.

## Introduction

The increasing prevalence of cigarette smoking among the adolescent and young adult population has resulted in much speculation surrounding its origin. Cigarette smoking is the single most preventable cause of death in the United States (Brannon & Feist, 1992). In fact, smoking is responsible for more deaths than Acquired Immune Deficiency Syndrome (AIDS), alcohol and drug abuse, automobile accidents, and fires combined (Doll & Hill, 1954; Hammond & Horn, 1954; Garfinkel, 1997; Dziuban, Moskal, & West, 1999), resulting in approximately 400,000 fatalities annually (U.S. Department of Health and Human Services, 1989; Hanson & Venturelli, 1998; Lewis, Piasecki, Fiore, Anderson, & Baker, 1998). Despite these negative outcomes, 32.9% of college students (Rigotti, Lee, & Wechsler, 2000) and 34.8% of high school students (National Youth Risk Behavior Survey, 2000) currently smoke cigarettes. Despite increased taxation of cigarettes and ordinances prohibiting cigarette smoking in restaurants, bars, work, and educational settings, legislation has done little to curb adolescent and young adult smoking behavior. Early exposure to campaigns emphasizing the health-related dangers of cigarette smoking, appear to be less than fully effective in deterring this cohort. Regardless of their merit, money is being continuously funneled into anti-smoking campaigns, resulting in state expenditures of at least 37 million dollars annually (Special Report: State Tobacco Settlement, 2002). Discerning the necessary components of an effective preventive intervention program is vital, due to the difficulties associated with smoking cessation. Studies have shown that although more than 80 percent of current smokers desire to quit, less than half actually attempt to quit, and less than five percent succeed.

Due to the recent increase in adolescent and young adult smoking, (Rigotti, et al., 2000; Wechsler, Rigotti, & Gledhill-Hoyt, 1998) and the related ineffectiveness of anti-smoking campaigns, further research is necessary to examine the underlying motivational factors for engaging in smoking behavior. Although research assessing possible motivational factors has been conducted previously, few studies have examined the adolescent and young adult population in a collective and comprehensive manner. Determination of the reasons adolescents and young adults decide to smoke facilitate the design of more effective intervention programs.

## Perceptions of the Risks Associated with Smoking

Despite the dissemination of knowledge regarding the dangers of cigarette smoking, the number of adolescent and young adult smokers has continued to increase. This may be because the information about smoking's harmfulness is not registering among the young. To assess the perceived dangerousness of cigarette smoking among the young adult population, Giacopassi and Vandiver (1999) surveyed 396 students attending a large, urban college. Respondents were asked to estimate the annual number of tobacco-related fatalities in America. To assess potential general tendencies to overestimate or underestimate operating within the sample, respondents were instructed to estimate the annual number of cocaine-related deaths and homicides. The actual annual number of alcohol-related fatalities and deaths attributable to cardiovascular disease annually were given to respondents to serve as potential sources of reference. Additionally, the current population of the United States was supplied to 241 of the respondents, to discern whether this figure would yield more realistic estimations. Between-group t-tests revealed no significant differences between those respondents given the population estimate and those respondents lacking this additional point of reference. Results indicated gross overestimation of deaths attributable to cocaine or homicide. In contrast, respondents drastically underestimated the number of tobacco-related deaths. Estimates reported by freshman respondents accounted for only half of all tobacco-related deaths, while senior respondents' estimated roughly 38% of the actual yearly figure. Median estimates of annual tobacco-related fatalities indicated that respondents' perceived homicide, drug and alcohol abuse as more potent threats to their well being than cigarette smoking.

## Evaluations of the Determinants of Smoking: Self vs. Others

To determine the malleability of smoking cognitions over time and the operation of cognitive dissonance among smokers, Brynin (1999) conducted a three-year, four wave longitudinal study examining the smoking behaviors of British adolescents, ranging in age from 11-15 years. On a yearly basis, respondents completed a self-report questionnaire. Respondents were instructed to listen to an audiotape and record their answers in written format. Smoking status, perceived dangerousness associated with smoking behavior, motivational factors, and structure of home-life was assessed. Smoking status was defined as nonsmoker, former smoker, and experimental smoker (i.e., tried smoking cigarettes, but is currently a non-smoker). To assess perceived dangerousness of cigarette smoking, respondents were asked to answer yes or no to the

following item: "Do you believe smoking is extremely dangerous?" Motivational factors assessed in conjunction with smoking behavior were the following: life satisfaction (school work, appearance, family, and friends), changes over the period of time associated with life satisfaction, self-esteem, closeness to mother or single father, and not wishing to stay on in education past the age of 16. Structural aspects of home-life addressed household composition, financial difficulties, smoking behavior of the mother or single father, and educational level of the mother or single father. Changes in reported smoking status were apparent. The number of current smokers increased by half between the ages of 13 and 14. Reported rates of experimental smoking increased one quarter during the span of 11-15 years of age. Long-term data analysis revealed a distinct pattern. While many adolescents reported smoking a cigarette in the past, few adolescents ever report quitting smoking. This trend revealed that those who label themselves as smokers are current smokers, however, those who reported quitting smoking were, in fact, those who only dabbled in cigarette usage. To assess the possibility of cognitive dissonance operating within the sample, attitudes towards smoking behavior and smoking status were tracked longitudinally. Nonsmokers tend to acknowledge the general health risks of smoking. If cognitive dissonance were operating within the sample, new current smokers might realign beliefs by refuting the dangers of cigarette smoking. From the time of the initial wave, to the third wave, the percentage of nonsmokers declined from 78 to 48%, while simultaneously, the percentage of respondents regarding cigarette smoking as dangerous behavior declined from 62 to 35%. Additionally, chi square analysis revealed that beliefs present during each wave corresponded to smoking status during that wave. Beliefs present during one wave did not correspond to smoking status in later waves. Therefore, this finding supports the notion that as smoking status of a respondent changes, so do their beliefs regarding the dangers associated with smoking behavior, supporting the operation of cognitive dissonance among adolescents when smoking status changes occur. Multivariate analysis and logistic regression revealed that experimental smokers and non-smokers held similar motivations and attitudes, while experiencing similar home-life situations. However, experimental smokers were significantly more likely than nonsmokers to report less concern about schoolwork and a lack of closeness with parents. For current smokers, changes in life-satisfaction were more prominent during the phase in which smoking status was embraced, rather than before the current smoker status was declared. In contrast, self-esteem proved to be a risk factor, as low levels of self-esteem in wave four were present before smoking initiation. Changes regarding perceived danger of cigarette smoking could have been assessed using more response alternatives, which may have provided a more accurate depiction of attitude adjustment.

The role of cognitive factors was further assessed using the framework of various attribution styles. In a study regarding personal and perceived smoking motivations, Jenks (1994) assessed whether smokers perceived the smoking motivations of themselves and others in accordance with the fundamental attribution error or the ultimate attribution error. The fundamental attribution error states that individuals are more likely to attribute their negative behaviors (i.e., cigarette smoking) to external causes, while using internal causation to explain the behaviors of others. In contrast, the ultimate attribution error involves the notion that group membership lends itself to attributing one's traits and motivations to other members.

Questionnaires were distributed to 258 college students enrolled in an introductory sociology course. Respondents were instructed to complete the questionnaire if they were a current cigarette smoker over 18 years of age. However, 224 students did not meet these requirements. As a result, they were instructed to give the questionnaire to someone who met the qualifications. Eighty-four percent of the respondents were non-students, with a mean age of 33.8 years. The 33-item questionnaire consisted of items regarding the quantity of cigarette smoking and duration of smoking status. Part of this measure consisted of 16 items assessing respondents' attitudes regarding their own smoking behavior and that of other current smokers. The rank order of reasons explaining personal smoking behavior, in descending order, was the following: psychological addiction, relaxation, physical addiction, pleasant activity, and weight control method. Significant differences emerged between the level of psychological addiction and relaxation, as smoking determinants and the levels at which the remaining factors were endorsed. In addition, the pleasant nature associated with smoking was reported more frequently than use of cigarettes as a means of weight control. In contrast, the rank order of reasons explaining the smoking behavior of others, in descending order, was the following: relaxation, psychological addiction, physical addiction, pleasant activity, and weight control method. Respondents were significantly more likely to perceive others' cigarette smoking as a means of relaxation, than in any other terms. Additionally, significant differences emerged between the use of smoking to achieve pleasure and smoking as a weight control method. Due to differences existing between personal smoking motivations and perceived smoking motivations of others, the ultimate attribution error was not supported. Since the respondents were more likely to report internal smoking causation (i.e., psychological addiction) as a personal motivator, the results failed to exemplify the operation of the fundamental attribution error in smoking behavior. The fact that smokers perceived their own reasons for smoking as being different from the reasons of other smokers may serve to perpetuate the perception of smoking as a stress reducer, and the reputation of cigarettes as an effective means of achieving relaxation.

The low percentage of college students enrolled in introductory sociology courses who met the criteria necessary to complete the questionnaire could have been rectified differently. Possible selection effects may have occurred when nonsmoking students were instructed to give their survey to an individual who currently smokes. Campus wide distribution of the survey instrument, excluding instructions to pass the survey on to another individual if the recipient failed to meet the necessary criteria, could have possibly created a higher number of subjects while minimizing selection effects.

## Smoking as an Addictive Behavior

### Smoking in Pursuit of Satisfying an Addiction

Once the smoking habit has become established, the majority of regular smokers report withdrawal symptoms if they go any length of time without a cigarette (Office of the U.S. Surgeon General, 1988; Hughes, Higgins, & Hatsukami, 1990; Parrott, Garnham, Wesnes, & Pincock, 1996; Parrott, 1999). Most seem to smoke in large part in order to relieve these unpleasant withdraw symptoms. Much smoking behavior can therefore be viewed as addictive.

To assess the role of potential psychological and physiological addiction factors, Shadel, Niaura, Brown, Hutchison, and Adams (2001) conducted a study of the subjective constructs of cigarette craving. Thirty-two current smokers with a mean age of 45.1 years were asked to describe the cravings they "usually experience" after the effects of nicotine have subsided. Prior to the study, all respondents expressed interest in smoking cessation treatment. Written responses were examined by content analysis in hopes of generating a multidimensional view of subjective smoking determinants. Coding for content analysis was performed by two raters, who classified motivations along the following dimensions: physiological (e.g., referring to a body part, bodily function, or action), affective (e.g., referring to a mood, emotion, or affective state), cognitive (e.g., referring to a thought, expectation, or consequence associated with smoking or not smoking), behavioral (e.g., referring to smoking cues or smoking behavior, and synonym (i.e., synonyms for crave; e.g., urge, desire).

Motivational dimensions for classification were derived from a literature review. Synonyms were determined using a thesaurus. When describing personal motivating factors in the context of craving, respondents were significantly more likely to use affective adjectives rather than physiological descriptors. Roughly a quarter of the respondents used the adjectives irritated, agitated, and frustrated when describing their subjective withdrawal experiences. The rank order of personal motivating factors, in descending order of importance, was as follows: behavioral, affective, cognitive, physiological, and synonym. Behavioral factors consisted of reasons related to the location, time of day, and before or at the conclusion of a particular part of the day. Perhaps Shadel, et al. (2001) study's of individuals who were at either the initiation or addiction stages in the cycle (arising from their use of cessation volunteers) provided an unrepresentative picture of the role of the different personal motivating factors. Further research surrounding subjective determinants of cigarette craving could perhaps include an examination of respondents' experiences during the various stages of the smoking cycle. Inclusion of both new smokers and those content to maintain their habit might yield a more through understanding of the motivations underlying this behavior.

Reported smoking motivators were examined along the dimensions of age and gender to assess how these variables may be related to differences in the causes of smoking (Sarason, Mankowski, Peterson,& Dinh, 1992; Gilliard & Bruchon-Schweitzer, 2001). A component of the Hutchinson Smoking Prevention Project assessed smoking motivations of 1,615 tenth grade students (Sarason, et al., 1992). A seven-item survey was administered to students assessing smoking motivations, as well as past, present, and predicted future smoking status. Each item was an open-ended question. Items were coded to create the following 11 categories: curiosity, social norms, offers and/or pressures, enhancement of self-image, pleasure and/or reduction of negative affect, pre-conceived expectations, desire, responses indicating a desire to quit tobacco use, and unsure. Smoking frequency was classified along the following dimensions: light (less than weekly), medium (less than daily), heavy (one to ten cigarettes per day), and very heavy (more than ten cigarettes per day). Respondents indicated that they initially smoked due to curiosity, social norms, and peer pressure. Significantly more females indicated initial smoking to comply with social norms and fit in with peers. Respondents who currently smoke indicated that they engaged in this behavior to achieve pleasure and satisfy an addiction. Significantly more females indicated current smoking behavior as a

means of attaining pleasure. Wald Test results revealed that former adolescent smokers reported significantly higher levels of curiosity and a greater impact of peer pressure during smoking initiation. Additionally, Wald Test analysis indicated reported motivational differences between light and heavy smokers. Heavy smokers were significantly more likely to report smoking behavior as a means of satisfying an addiction than light or moderate users of tobacco. These respondents also cited attainment of relaxation and decreased negative affect as powerful motivators. Respondents reporting smoking behavior as a means of satisfying an addiction were more likely to perceive smoking cessation as difficult. Over half of the current heavy smokers reported that they would experience difficulty abstaining from cigarettes. Of the current smokers who did not cite addiction as a motivating factor, approximately half believed that they could quit smoking with minimal difficulty. In this research, the use of an indirect method of assessment could have possibly reduced the chance of social desirability factors' influencing these findings. Additionally, items related to personal nonsmoker motivations could have been devised for the 489 respondents who were non-smokers.

Evidence of smoking as an addiction among adults was also found by Gilliard and Bruchon-Schweitzer (2001). These researchers investigated smoking behavior among 150 adults who currently smoke. A 42-item survey was devised after interviewing 35 adult smokers and performing thematic analysis of previous surveys created over the past thirty years. Each item represented one theme related to personal smoking motivations. Varimax rotation yielded the following four factors: dependence, social integration, regulation of negative affect, and hedonism. The dependence factor was characterized by the uncontrollable urge to smoke, automatic smoking behavior, and a reported need for nicotine. The social integration factor was characterized by impression management, social acceptance, and use of cigarettes in social situations. The regulation of negative affects factor was characterized by the use of cigarettes as a form of self-medication when confronted by anxiety, sadness, tension, anger, and worries. The hedonism factor was characterized by feelings of pleasure and relaxation while smoking, or derived from the hand gestures associated with smoking.

Interactions between gender and other factors emerged. Results for the dependence factor indicate that single males who experience routine boredom and whose friends smoke were more likely to engage in smoking behavior than content, married males whose friends do not smoke. In contrast, women who reported use of stimulants and psychotropic medication were more likely to smoke than women not using these substances. Both male and female smokers who engage in smoking behavior for a greater portion of the day and are either at the "initiation" or "hooked" stage of the smoking cycle were more likely to smoke as a result of dependence. Results for the social integration factor indicate that married men who are high sensation seekers were more apt to smoke as a means of fitting in socially than single, non-sensation seekers. Single women who are highly susceptible to peer pressure were more likely to smoke to attain social integration than their married, autonomous counterparts. Men who smoke as a means of regulating negative affect were more likely to be in the early stages of the smoking cycle and seek high levels of sensation than later stage, nonsensation-seeking smokers. Women who smoke due to negative affect regulation reported higher levels of anxiety and depression than those women citing other motivations for smoking. Men seeking novel experiences were more likely to smoke for hedonistic reasons than male

smokers content with contiguity. In contrast, women who smoke for hedonistic reasons were more likely to report higher levels of extraversion and anxiety than female respondents citing other motivations for smoking. Examination of data along the dimension of age may have yielded further interesting findings. Perhaps respondents over 50 years of age and those under 50 years of age had different motivations for engaging in smoking behavior. Additionally, the extreme length of this questionnaire may have created testing fatigue, compromising the validity of the responses predicted.

## Smoking as Means of Self-Medicating

### Smoking in Pursuit of Relaxation Effects

Due to the harried lives of individuals in modern society, many individuals seek respite through cigarette smoking. As the demands upon the adolescent population become increasing more stressful, teenagers frequently cite smoking as a means of achieving relaxation effects. Although cigarette withdrawal periods are potentially stress-inducing events, as noted by Parrott (1999), smokers reported pursuit of relaxation effects as a powerful motivator for their behavior. Pursuit of relaxation effects was among the top two motivational factors reported by smokers (Sarason et al., 1992; Gillard & Bruchon-Schweitzer, 2001; Campbell, Bartlett, Liberati, Tornetta, & Chambliss, 2000; Jenks, 1994). Reported use of cigarette smoking as a means of relaxation was mediated by gender and frequency of smoking behavior. Female respondents and current smokers were significantly more likely to cite relaxation as a motive for smoking (Sarason et al., 1992). Additionally, differential levels of relaxation motivation existed between heavy and light smokers, as heavy smokers regarded the perceived stress-reducing properties of cigarettes as a powerful motivator. Use of cigarettes to regulate negative affect may also be associated with relaxation. Gilliard and Bruchon-Schweitzer (2001) discovered that high reported levels of anxiety among females were associated with endorsement of relaxation as a reason for smoking.

### The Relationship Between Smoking and Stress

Several researchers have examined the relationship between current smoking status and reported use of smoking as a means of reducing distress, with somewhat contradictory results. Parrott (1999) demonstrated the positive relationship between smoking and stress. Paradoxically, although many smokers believe that smoking relaxes them, in actuality it results in increased levels of stress, especially for those who smoke regularly. Regular smokers report increased levels of stress and irritability when refraining from smoking (Office of the U.S. Surgeon General, 1988; Hughes, Higgins, & Hatsukami, 1990; Parrott, Garnham, Wesnes, & Pincock,, 1996; Parrott, 1999). Therefore, the source of positive affect experienced while smoking may result from the reversal of abstinence affect, rather than from any actual net improvement in mood. There is evidence in both adult and adolescent populations that stress levels differ by smoking status. Adult smokers tend to report levels of stress comparable to nonsmokers after engaging in smoking behavior. However, smokers report significantly higher levels of stress following even a brief period of abstinence (Parrott & Garnham, 1998; Parrott, 1999). Nonsmoking adolescents reported the lowest levels

of self-reported stress in comparison to occasional and regular smokers (Lloyd & Lucas, 1997; Parrott, 1999). Regular smokers reported the highest levels of subjective stress. Learning to recognize the positive correlation between stress and smoking behavior may influence smokers to choose alternative behaviors to effectively relieve stress.

A recent study conducted by Wills, Sandy, and Yaeger (2002), further explored the relationship between stress and cigarette smoking. Wills, et al. (2002) examined the relationship between smoking and stress in the context of Parrott's model and the etiological model. Parrott believed that smoking behavior resulted in an increased level of stress. In contrast, the etiologic model proposed that stress is a risk factor for smoking behavior. A long-term repeated measures design was used to assess smoking status and stress level over time. Questionnaires regarding smoking status and self-reported stress level were administered to 1,364 respondents, with a mean age of 12.4 years at the onset of the study. Reassessment occurred three additional times on a yearly basis. Smoking status was classified along the following dimensions: never smoked a cigarette, tried one or two cigarettes, used cigarettes four or five times, usually smoke a few cigarettes a month, usually smoke a few cigarettes a week, and usually smoke cigarettes every day. Stress level was determined by scores on a 12-item negative affect inventory developed by Zevon and Tellegen, and a 20-item inventory concerning negative life events, which was developed by Wills, et al. The negative affect inventory required respondents to rate how they felt during the past month along several dimensions of negative affect (e.g., tense, dissatisfied with things, sad worried, hostile, irritated, upset), using a scale ranging from zero (not at all true) to four (very true). The negative life events inventory required respondents to record whether or not 11 negative family events and nine negative personal events occurred during the past year, by checking yes or no beside each respective event. Items on the negative life events inventory pertained to the previous year. Demographic information and items assessing use of other substances were also included. Additionally, a Breath CO Analyzer was used by researchers to assess the validity of the self-report measure. Both smoking status and negative affect increased over the four-year period. Negative life events did not vary systematically over time. Analysis of a latent growth model, using Mplus, revealed the following positive paths for female respondents: level of negative affect, change in negative affect over time, and change in smoking status over time. The path from level of negative affect to change in smoking status was significant. However, no significant path was determined from smoking status to change in negative affect over time. Therefore, the more recent findings supported the etiological model of smoking rather than Parrott's model.

## Smoking in Pursuit of Stimulant Effects and Cognitive Enhancement

Examination of stimulant effects by Gilliard and Bruchon-Schweitzer (2001) revealed the use of cigarettes as a way of ameliorating anxiety and depression among women. The findings of Wills, et al. (2002) supported earlier results, strengthening the case that there is a relationship between the escalation of smoking and increased levels of negative affect. Male smokers were found to seek the stimulant effects of cigarettes for a heightened sense of arousal (Gilliard & Bruchon-Schweitzer, 2001). Although use of cigarette smoking as a stimulant was consistently ranked as the least important factor,

evidence of tobacco's effectiveness as an appetite suppressant and metabolic stimulant has been well documented (Brannon & Feist, 1992). There is also accumulating evidence that nicotine is associated with cognitive enhancement, at least in some populations (Torrey, 1999). There have been anecdotal reports that some college students see cigarettes as having effects similar to those of psychostimulants, such as Ritalin.

**Smoking as a Communication about Social Identity**

Smoking in Pursuit of Image Effects

Over the years many movies and television programs have depicted smoking as a sophisticated, dramatic behavior that can appear glamorous and serve as a beguiling form of self-expression. In one of the few studies explicitly examining concerns about image, Campbell, et al. (2000) found that these self presentation issues were second only to desire for relaxation as a motivation for smoking. The importance of image concerns found in this sample of 74 young adult smokers was not paralleled by research using older samples of adults. This may suggest that self presentation figures into the decision to smoke more among college students than their older counterparts. It is also possible that college students are more willing to acknowledge the role of such factors in shaping their decision to smoke. However, few studies on older adults directly assessed image concerns as a motivator for smoking.

A previous study conducted by Hodges, Srebro, Authier, & Chambliss, 1999, assessed the perceptions of 76 faculty members and 319 college students regarding the smoking behavior of others. Participants were asked to rate, "When you watch someone else smoke, how do they appear?" on the following dimensions: inadequate, relaxed, anxious, inconsiderate, attractive, sophisticated, secure, immature, content, and intelligent. Regardless of the participant's former or current smoking status, target smokers were significantly more likely to be described as unattractive and unsophisticated than nonsmokers. Additional research assessing image effects in an increasingly subtle manner, is needed to clarify the reliability and generalizability of the Campbell et al. (2000) conclusions.

Several studies have obtained evidence supporting the notion that smoking behavior serves as a means of relating to peers within both adolescent and adult populations (Sarason, et al., 1992; Gilliard & Bruchon-Schweitzer, 2001). Married, sensation seeking male adults; single, female respondents with poor self-refusal efficacy; and female adolescents reported using cigarettes as a means of achieving greater social acceptance.

Direct assessment of the role of image concerns is difficult because it is not highly socially acceptable to acknowledge that one's smoking is motivated by the desire to enhance one's image. It seems plausible that few smokers would feel comfortable candidly acknowledging that they smoke "to look cool." However, reluctance to report this motivation does not necessarily mean it is not actually a causal factor. One way of indirectly estimating the influence of image factors is to consider the findings from research on various social situational determinants of smoking. Presumably those who are more likely to smoke in social contexts are at least partially doing so to enhance their self presentation.

## Social Situational Determinants of Smoking Behavior

Situational determinants of cigarette smoking behavior among adolescents were investigated by Lucas and Lloyd (1999), using qualitative research techniques. After quantitative survey research of 4,773 British respondents ages eleven to sixteen revealed a significant gender difference regarding current smoking behavior, 33 focus groups were formed. Due to the higher smoking prevalence among females, each focus group consisted of two to six girls who belonged to friendship groups prior to the study. Focus groups were classified by smoking status along the following dimensions: homogeneous non-smokers, homogeneous experimental smokers, and homogeneous regular smokers. Homogeneous non-smoking groups were comprised of members who had never smoked a cigarette. Homogeneous experimental smoking groups were comprised of members who tried smoking cigarettes, but no longer smoked cigarettes at the time of the study. Homogeneous regular smoking groups were comprised of members who were current regular smokers. Due to the requirement of homogeneous group composition, only 13 of the original 33 focus groups were examined. Focus group discussions were documented by audio recordings, and the NUD*IST (Non-numerical Unstructured Data Indexing, Searching, and Theorizing) computer program was used for data analysis. The ten homogeneous non-smoking focus groups discussed situational determinants, which they associate with smoking behavior. The following three dimensions were used to describe smokers: active, predatory, and demanding of conformity to their smoking behavior. The active factor referred to the perceived importance of going somewhere specifically to smoke, smoking to socialize with others, and smoking to impress the opposite sex. The predatory factor was described as involving the confrontation of weak nonsmokers by current regular smokers to engage in smoking behavior. The factor encompassing conformity demands referred to the use of persuasion, physical intimidation, and social ostracism. In a social context, members of homogeneous non-smoking groups asserted that smoking would alter group identity. Group members described other non-smokers as quiet, sensible, homebodies. When asked what they would do if a member of the group started smoking, respondents stated that their friends were autonomous, and therefore smoking was one's own decision. However, when discussing previous close friends who smoked, respondents recalled initial friendship maintenance, followed by persuasion to revert back to a non-smoking status. "Gone bad" or "badness" were the descriptors most frequently cited by respondents in reference to adolescent females who currently engage in smoking behavior. If a hypothetical non-smoker experimented with cigarette smoking and subsequently decided to quit, respondents concluded that she would remain a member of the group. Reasons regarding sustained group membership of the hypothetical quitter included seeing the case as representing a singular nature of smoking experimentation and that the individual was able to conclude that refraining from smoking behavior was warranted.

The two homogeneous experimental smoking focus groups regarded situational determinants along the following three dimensions: instigation, sense of place, and reassurance by smokers. Instigators were most frequently described as older acquaintances rather than close friends. A sense of place was cited as a designated location where the smoking ritual took place. Adolescents would go out and meet, with the purpose of smoking in mind. A sense of daring and fearlessness were cited most

frequently, depicting the subjective experience associated with this location. Similar to the perceptions of the homogeneous non-smoking groups, homogeneous experimental smoking groups described smoking initiation in a persuasive context. Additionally, members of the homogeneous experimental smoking groups noted that individuals unable to produce persuasive counter arguments were more likely to smoke as a result of persuasion.

The one homogeneous regular smoking focus group described their subjective smoking experiences along the following three categorical dimensions: initiation, experimental smoking, and regular smoking. The initiation phase closely paralleled the perceived descriptions of peer influence given by respondents belonging to homogeneous non-smoking groups. A strong sense of place was expressed, similar to the homogeneous experimental smoking groups, however the role of an instigator was less pronounced. Additionally, when describing the experimental smoking phase, a desire to stay active and an unwillingness to make counter assertions regarding smoking claims was also evident. Regular smoking was characterized by the growing realization that they were addicted. When this occurred, respondents reported viewing themselves as a "smoker."

Further research on heterogeneous friendship groups and their attitudes regarding the smoking behavior of close friends is warranted. Although homogeneous non-smoking group members argued that group members who engaged in smoking behavior would be ostracized, this prediction is incongruent with the presence of 20 heterogeneous friendship groups discovered prior to qualitative data collection of the homogeneous groups. The actual dynamics within the heterogeneous groups, and the means used by the nonsmokers to maintain their choice could be very important to study.

The possible role of parental and peer influence was assessed longitudinally by Brook, Whiteman, Czeisler, Shapiro, and Cohen (1997), over a period of 17 years, from 1975 to 1992. Participants ranged from one to ten years of age during wave one in 1975 and 18 to 28 years of age during wave four in 1992. A four-wave longitudinal analysis was conducted on 746 of the original 976 participants. During the first wave of analysis, the participants' mothers were individually interviewed. During the next three waves of analysis, the mothers and their children were each privately interviewed. To assess the role of parental influence regarding smoking behavior, the following six psychological measures were used: Maternal Affection measure (mother's affect towards child), Maternal Discipline measure (mother's use of assertive discipline techniques), Maternal Identification measure (child's reported admiration and imitation of his/her mother), Maternal-Child Conflict measure (degree of conflict present in mother-child relationship), Mother Time Spend measure (amount of time spend with mother), and the Maternal Smoking Behavior measure (frequency of smoking behavior). To assess the role of peer influence regarding smoking behavior the following five psychological measures were used: Achieving Friends measure (friends' academic performance), Peer Deviancy measure (frequency of peers' deviant behavior), Peer Marijuana Use measure (number of child's friends smoke marijuana), and Peer Smoking measure (number of child's friends smoke cigarettes). Additionally, smoking status was rated from zero to six (0=never smoked, 6= currently smoke 1.5 or more packs daily).

Due to the emergence of significant differences between those who completed all four waves of the study and those who dropped out, results were alternatively analyzed. A cross-sectional sample was obtained by dividing the sample by older and younger aged

cohorts (older cohort= five years of age or older at wave one, younger cohort= younger than five years of age at wave one). A mutual parent-child attachment was positively correlated with nonsmoking status in both the younger and older cohort. Parent smoker status and child smoker status were positively correlated for the younger cohort. Deviant behavior, as well as usage of marijuana and cigarettes by peers, was positively correlated with child smoker status in the younger cohort. In contrast, possessing friends who achieve good grades was negatively correlated with child smoker status in both the younger and older cohort. Regression analyses revealed the distinct role of parental and peer smoking influences during various developmental stages. At wave two, parental smoking behavior was the primary influence reported for smoking initiation. At wave three, peer smoking behavior was the primary influence reported for smoking initiation. Due to the significant difference between participants who completed all four waves of the study and those who dropped out, the findings were cross-sectional, not longitudinal in scope.

Flay, Hu, Siddiqui, Day, Hedeker, Petraitis, Richardson, and Sussman (1994) examined the role of parental and peer smoking influence during smoking initiation and escalation. Respondents participated in the Television, School, and Family Project and as a part of this completed a smoking prevention program questionnaire. The first assessment, conducted in 1986, consisted of 6,695 seventh grade respondents. Fifteen months later, 4,896 respondents were re-administered the questionnaire as eighth grade students. Respondents who reported smoking more than one cigarette during the first assessment were excluded from the study, as well as those who reported disruptive family structure (single parent, orphan). Due to these restrictions, final analysis consisted of a 1,974 respondents, 1,402 respondents analyzed for initiation and 572 for examination of the escalation, respectively. A structural model was constructed to assess the following potential motivators: friends' smoking, parental smoking, negative outcome expectation, perceived friends' approval of smoking, perceived parental approval of smoking, refusal self-efficacy, smoking intentions, and adolescent smoking behavior. To assess friends' smoking behavior, participants were asked how many of their ten closest friends had tried smoking a cigarette and how many of these friends were current smokers (smoked at least one cigarette in the past seven days). To assess parental smoking, respondents were asked to report the frequency of their parents' smoking behavior. To assess negative outcome expectation, respondents were asked to respond to four items regarding perceived health risks associated with smoking cigarettes. Questions regarding susceptibility to lung cancer and heart disease were posed along the following dimensions: a smoker acquiring the disease, a smoker dying as a result of the disease, the respondent acquiring the disease, and the respondent dying as a result of the disease. To assess the level of parental and peer approval of smoking behavior, respondents reported perceived level of approval, ranging from absolute approval to absolute disapproval. To assess refusal self-efficacy, respondents reported the level of difficulty associated with cigarette refusal, ranging from extremely hard to not hard at all. To assess smoking intentions, respondents were asked if they would ever smoke in the future and if they would ever ask a smoker for a cigarette to try, with responses ranging from definitely would to definitely would not. Adolescent smoking behavior was assessed along the dimensions of initiation and escalation. Respondents classified as initiators reported nonsmoking status at the first assessment and smoking status at the second assessment.

Respondents classified as escalators reported experimental smoking status (smoking a fraction of a cigarette or one cigarette) at the first assessment and a higher level of smoking (smoking more than one cigarette) at the second assessment.

The structural model indicated that friends' smoking behavior directly affected smoking initiation of the respondent. Additionally, smoking intentions and negative outcome items indirectly affected respondent's smoking initiation, as smoking friends were associated with increased intent to smoke and decreased reporting of negative outcome. Parental smoking indirectly affected respondents' smoking initiation, as perceived parental approval increased, the likelihood of reported negative outcome decreased. Escalation was effected by parental and peer influences indirectly. Peer smoking was associated with increased levels of perceived peer acceptance of smoking, decreased levels of refusal self-efficacy, and a decline in reported negative outcomes. Parental smoking was associated with increased levels of perceived parental acceptance of smoking and a decline in reported negative outcomes.

## Financial Determinants of Smoking Behavior

Financial factors also play an active role in determining smoking behavior. A study conducted by Blendon and Young (1998) examined responses of the American public regarding anti-tobacco legislation. The results of 804 face to face or telephone interviews were compiled from 45 surveys, including the POLL database, the National Journal's Cloakroom Website, and the Harvard-Chilton poll. Public perceptions of adolescent smoking motivations and support of new anti-tobacco legislation were addressed. The influence of peers and modeling of smoking behavior by parents were cited as the most salient reasons for smoking by the American public. Nine percent of respondents surveyed reported that the low price of cigarettes and unchecked access to cigarettes created by more lenient anti-tobacco campaigns were factors responsible for adolescent smoking behavior. Increased taxation of cigarettes (to $1.10 per pack) was only believed to be an effective youth deterrent by 32% of the respondents in 1998. In contrast, taxation of this nature was supported by 62% of the respondents surveyed in 1993. Results indicated that approximately half of the respondents did not support anti-tobacco campaigns. These individuals believed that the increased taxation on cigarettes was a threat to freedom of choice, favored tobacco companies, and/or simply believed such campaigns would be unsuccessful in decreasing the prevalence of adolescent smoking behavior. Others voiced concern that although increased taxation was warranted, a $1.10 increase per pack was extreme, possibly leading to illegal sale of cigarettes through the black market. This prospect could possibly make cigarette use parallel that of street drugs, potentially resulting in increased violence and gang activity. Furthermore, the difficulty required to purchase cigarettes may inadvertently increase the allure of smoking behavior for youngsters.

Survey research conducted by the National Bureau of Economic Research (2000) indicated that the overall drastic decrease in cigarette use from 1990-1995 may have played a role in the 30% increase in adolescent smoking behavior during this period. Although the findings of the National Bureau of Economic Research failed to find substantial evidence supporting further governmental anti-smoking initiatives, The Medical Letter on the Center for Disease Control and Federal Drug Administration,

(2002,March), reported strong evidence endorsing the increased taxation of cigarettes. According to this document, although increased taxation would not significantly reduce the number of experimental smokers, current smokers would be affected. The nationwide Monitoring Future Survey (The Medical Letter on the Center for Disease Control and Federal Drug Administration, (2002,March) results tabulated from the years 1992 through 1994, consisted of approximately 45,000 to 57,000 students enrolled in eighth, tenth, and twelfth grades. Nationwide sampling allowed comparison of smoking behavior occurring in regions of low and high cigarette taxation. Respondents were classified along the following dimensions: smoking status (nonsmoker, experimental smoker, smoker), frequency of cigarette smoking (light vs. heavy usage), method of acquiring cigarettes (purchase, parent, friend), and geographical location (state in which they reside). Statistical analysis revealed that when the cost of cigarettes exceeded $2.32, respondents were 13% less likely to make the purchase, when compared to cigarette costs of less than $2.07. Additionally, higher taxation of cigarettes affected the level of cigarette use. Respondents purchasing cigarettes in areas where high taxation was present were 30% less likely to smoke twenty cigarettes or more on the daily basis.

## Self-esteem's Mediation of Smoking Behavior

A longitudinal study assessing adolescent self-esteem revealed that low levels of self-esteem present before smoking initiation may serve as a potential risk factor for future smoking behavior (Brynin, 1999). To assess the possible relationship between smoking and self-esteem, Kiawabata, Cross, Nishioka, and Shimai (1999) conducted a three-year cohort study, surveying 2,090 fourth through ninth grade Japanese students. The 22-item questionnaire they used consisted of the following three self-esteem measures: the Harter Perceived Competence Scale, the Pope Self-esteem Scale, and the Rosenberg Self-esteem Scale. The Harter Perceived Competence Scale assessed cognitive competence (i.e., academic competence), social competence (in the context of peer relationships), and physical competence (i.e., competence participating in sports and outdoor games). Respondents were instructed to read each item, describing a child's behavior as either competent or incompetent, and decide the degree of which their behavior resembles the item's depiction. Response alternatives were provided on a four-point scale (1= "sort of true" [high self-competence], 4= "really true" [low self-competence]). A high score on the Harter Perceived Competence Scale indicated high levels of perceived competence.

The Pope Self-esteem Scale assessed family (i.e., relationships with family members), and body self-esteem (e.g., acceptance of physique, appearance, and motor skills). Respondents were instructed to read each item and decide whether it described them (1= usually agree, 3= usually disagree). A high score on the Pope Self-esteem Scale indicated high levels of self-esteem.

The Rosenberg Self-esteem Scale assessed global self-esteem (i.e., broad statements assessing one's self-esteem). Respondents were instructed to read each item and decide whether it described them (1= usually agree, 3= usually disagree). A high score on the Rosenberg Self-esteem Scale indicated high levels of self-esteem. Additional items assessed the following dimensions: stress management skills, health-related behaviors (e.g., cigarette smoking, use of alcohol, eating behavior, physical activity), smoking

intentions, refusal self-efficacy, smoking behaviors of significant others, and smoking status (e.g., previous and current smoking behaviors).

Between-group t-tests revealed a significant difference between ever smokers (current and previous smokers) and those who never smoked cigarettes. Female respondents and junior high school males classified as ever smokers were more likely to report lower levels of cognitive self-esteem than those who never smoked cigarettes. Additionally, significant differences regarding global self-esteem levels emerged between ever smokers and those who never smoked cigarettes. Female, junior high school respondents who smoked were more likely to report lower levels of global self-esteem than those who never smoked cigarettes. However, measures of physical competence revealed that male respondents and female, junior high school respondents who smoked were more likely to report higher levels of physical competence than those who never smoked cigarettes. Additionally, measures of social competence revealed that male, junior high school respondents who smoked were more likely to report higher levels of social competence than those who never smoked cigarettes.

An examination of wellbeing and health-risk behaviors, conducted by Bergman and Scott (2001); revealed a relationship between low levels of reported self-efficacy and cigarette smoking, as well as unhappiness and cigarette smoking. Data were derived from the 1994-1997 Youth Surveys of the British Household Panel Study, consisting of 1274 respondents, ranging from 11 to 15 years of age.

Current smoking status was determined by the response to the following question "How many cigarettes did you smoke in the last seven days?" Roughly 90 percent of respondents indicated that they had not engaged in smoking behavior during the last seven days.

Self-efficacy was assessed using two items ("I am useless." "I am no good."), derived from the Rosenberg Self-esteem scale. Results indicated a positive correlation between smoking and negative self-efficacy.

Happiness was assessed along the following dimensions: unhappiness (i.e., current satisfaction with appearance, family, and life in general), and past worries (e.g., how often respondent felt lonely, lost sleep during the last week, or number of days spent being unhappy). Results indicated a positive correlation between smoking and unhappiness. Examination of respondents' reported smoking behavior for the past 30 days could potentially increase sample size, therefore increasing the probability of detecting significant between group differences.

A common failing of many studies is a restricted range of view. To discern the relationship between specific subjective determinants and smoking behavior, a comprehensive assessment of many possible factors is imperative. One of the few empirical investigations to examine motivational factors more comprehensively was conducted by Campbell, et al. (2000). Three hundred and twenty-four college students completed a survey assessing smoking motivations. Respondents were asked to rate "When you smoke a cigarette, how does it make you feel?" on 16 Likert-format items (1=Never, 2=Rarely, 3=Often, and 4=Very Frequently), assessing the four hypothesized subjective effects sought by smokers. Subjective smoking determinants of 74 current smokers were assessed along the following dimensions: relaxation effects, image effects, competence effects, and stimulant effects.

To measure the motivational role of relaxation effects, scores were grouped and averaged for the following feeling items: high levels of relaxation, contentment, and trust, and low levels of anxiety and jitteriness. In order to assess the importance of image effects, scores were averaged and grouped for the following feeling items: high levels of attractiveness, sophistication, and maturity. In order to assess the importance of competence effects, scores were grouped and averaged for the following feeling items: high levels of alertness, competence, security, intelligence, and adequacy. In order to assess the importance of stimulant effects, scores were grouped and averaged for the following feeling items: high levels of physical fitness, and energy, and low levels of hunger.

Smokers reported using cigarettes in order to attain relaxation effects, image effects, and competence effects more so than stimulant effects. The rank-order of these factors, in descending order were: relaxation effects, image effects, competence effects, and stimulant effects (Campbell, et al., 2000). This finding stating the primary importance of relaxation effects parallel that of previous research conducted on an adult population.

Another study that explored the relative importance of these four motivational factors, using a slightly different approach than Campbell, et al. (2000) was conducted by Hodges, et al. (1999). Hodges, et al (1999) found respondents, both smoker and nonsmoker alike, rated target smokers less favorably than nonsmokers, along the following positive personality dimensions: attractiveness, sophistication, and content. Overall ratings suggested that smokers were rarely perceived as secure, intelligent, physically fit, or energized.

Due to the prevalent belief that smoking provides relaxation effects, despite the actual stimulant effects of nicotine, suggests that further dissemination of information refuting this false belief is warranted. It would also be valuable to document whether younger potential smokers (e.g., high school students) misperceive cigarettes as facilitating relaxation.

## The Present Study

The current investigation extended the work of Campbell, et al. (2000) to a wider age range. It also explored the reasons students who do not smoke choose to refrain. Four possible personal smoking motivation factors were assessed by surveying a sample of high school and college students who currently smoke. Personal smoking motivational factors examined were relaxation effects, image effects, competence effects, and stimulant effects. These personal reasons for smoking were indirectly assessed by measuring subjective feeling states that accompany smoking behavior. It was hypothesized that attaining of desirable states while smoking was motivating smoking behavior. Additionally, eight possible subjective determinants for not smoking were assessed by surveying a sample of high school and college students who refrain from smoking. Several environmental and emotional factors were examined, including the former and current smoking status of close friends and ratings of self-esteem through the Rosenberg Self-esteem Scale. This study provided a necessary extension of Campbell, et al. (2000) and Hodges et al. (1999), by examining personal

smoking motivational factors of both a high school and college cohort and by exploring the possible relationship between smoking behavior and self-esteem.

## Method

### Participants

Respondents were 115 college students from a small liberal arts college from a suburban area in the Northeast United States and 108 high school students attending a public school in the same area. One hundred and fifty female students and 70 male students, with a combined mean age of 18.04 years, responded. The sample consisted of 58 current smokers, 51 former smokers, and 114 nonsmokers. The survey was administered to college students enrolled in introductory and upper level psychology courses, and high school students enrolled in health education classes.

### Survey Instrument

The survey consisted of 200 items pertaining to current and previous personal smoking habits, motivations for smoking and not smoking, and perceptions of current smokers, nonsmokers, and former smokers. Additionally, the Rosenberg Self-Esteem Scale (1965) was included.

In order to assess the importance of different subjective states in maintaining cigarette smoking behavior, the responses of only the smokers in the sample were solicited. Their subjective smoking experience was assessed through 14 Likert-format items (1 = never, 2 = rarely, 3 = often, 4 = very frequently). Participants were asked to rate, "How do you feel when smoking a cigarette?" on the following dimensions: trusting, less hungry, relaxed, inadequate, anxious, physically fit, alert, energized, confident, attractive, popular, mature, satisfied, and intelligent. These items were selected in order to investigate the importance of four hypothesized motivational factors underlying smoking: relaxation effects, image effects, competence effects, and stimulant effects.

To measure the motivational role of relaxation effects, scores were grouped and averaged for the following items: high levels of relaxation, satisfaction, trust, and low levels of anxiousness. In order to assess the importance of image effects, scores were grouped and averaged for the following items: high levels of attractiveness, popularity, and maturity. In order to assess the importance of competence effects, scores were grouped and averaged for the following items: high levels of alertness, intelligence, confidence, and low levels of inadequacy. In order to assess the importance of stimulant effects, scores were grouped and averaged for the following items: high levels of physical fitness, energy, and low levels of hunger.

The participant's level of self-esteem was assessed through the Rosenberg Self Esteem Scale (Rosenberg, 1965). This portion of the questionnaire consisted of 14 Likert-format items (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree). Scores for positive items were added and negative items subtracted, creating a composite variable. A median split was performed, yielding high and low levels of self-esteem (high self-esteem group members' scores were greater than or equal to 26, low self-esteem group members' scores were less than or equal to 25).

### Procedure

The survey was distributed and collected anonymously by the course instructor for both the college and high school samples. It was administered during regularly scheduled class periods. No time restrictions were indicated.

## Results

### How prevalent is smoking among adolescents and young adults?

Descriptive analyses revealed patterns of regular tobacco use among certain members of the adolescent and young adult populations. Twenty-six percent of the respondents reported smoking cigarettes within the past 30 days. Half of the entire sample had never used cigarettes. Roughly a quarter of the respondents were former users. Roughly another quarter were current smokers, and among those, 13% smoked on a daily basis. Half of the current smokers smoked 4 or fewer cigarettes a day and none smoked more than a pack. About 18% of the high school students and 34% of the college students surveyed were classified as current smokers (those individuals who reported smoking cigarettes within the last 30 days). Despite the fact that cigarette smoking is negatively correlated with SES and education, in the current sample, the percentage of college students who smoked was about double the percentage of high school students who smoked. A chi-square analysis revealed a significant difference between the high school and college students in this pattern of tobacco use
(chi-square=12.56, df=4, $p<.01$). From the high school to the college developmental period, there was a 50% increase in the number of daily smokers, while the percentage of non-daily current users tripled. It appears that much of the increase in tobacco use among college students may occur sporadically (perhaps at weekend social events) and may not necessarily entail daily use.

Men's and women's use of cigarettes differed across the developmental periods examined. Of the female students surveyed, 12% smoked regularly in high school, while almost a third of those in college were regular smokers. Among the males, about a quarter smoked in high school students, and 43% smoked regularly once in college.

### Why do Smokers Smoke?

Within subject t-tests identified significant differences between the subjective determinants of smoking for the 52 high school and college smokers. In order to determine if differences existed among the four personal smoking motivation factors, paired sample t-tests were performed on the smokers' various factor scores. Significant differences were found between each pair of motivational factors considered (Table 1). Table 2 reveals the four factors ranked in importance.

Table 1: Within subject t-test comparisons of pairs of motivation factors.

| Paired factors | t | df | p |
|---|---|---|---|
| Relaxation vs. Competence | 2.10 | 49 | .04 |

| | | | |
|---|---|---|---|
| Relaxation vs. stimulant | 7.50 | 50 | .001 |
| Relaxation vs. Image | 10.50 | 50 | .001 |
| Competence vs. Stimulant | 6.733 | 50 | .001 |
| Competence vs. Image | 10.28 | 51 | .001 |
| Stimulant vs. Image | 2.75 | 51 | .01 |

Table 2: Mean ratings of the subjective determinants of smoking provided by 52 high school and college smokers

| Effect | Mean | Standard Deviation |
|---|---|---|
| Relaxation | 10.39 | 1.71 |
| Competence | 9.81 | 2.29 |
| Stimulant | 7.73 | 2.69 |
| Image | 6.83 | 2.68 |

Additionally, significant differences among the four personal smoking motivational factors were identified by developmental period. Specifically, between-group t-tests revealed that high school smokers reported the use of tobacco for stimulant effects significantly more than college students (high school: $x = 8.59$, $sd = 2.45$, $n= 17$; college: $x = 6.91$, $sd = 2.56$, $n =23$; $t = 2.08$, $df = 38$, $p<.05$). Motivational differences for smoking between genders were non-significant.

Why do nonsmokers refrain?

Within subject t-tests identified significant differences among the subjective determinants of nonsmoking for the 159 high school and college smokers. In order to determine if differences existed among the eight reasons for refraining from smoking, paired sample t-tests were performed on pairs of factor scores obtained from the nonsmokers. Significant differences were found between the primary reason cited (health concerns) and all other reasons ($p<.001$). Concerns about the cost of cigarettes were rated significantly lower ($p<.001$) than all but one other reason for refraining (family history of problems with substances was not significantly different from money as a reason cited for not smoking). Table 3 reveals the eight reasons for refraining, ranked to reflect their reported importance.

Table 3: Mean ratings of the subjective determinants to refrain from smoking provided by 160 nonsmoking high school and college students.

| Motivations to Refrain | Mean | Standard Deviation |
|---|---|---|
| It is bad for my health | 3.65 | 0.81 |
| I don't want to lose control or become hooked | 3.31 | 1.09 |
| I don't want to disappoint people I care about | 3.11 | 1.20 |
| I don't like the taste | 3.02 | 1.26 |
| It is against my values | 2.98 | 1.23 |
| It interferes with my athletic activities | 2.97 | 1.24 |
| People in my family have had problems (i.e., abuse, death) | 2.62 | 1.35 |
| It costs too much money | 2.46 | 1.32 |

Additionally, significant differences among the subjective determinants for not smoking were identified between genders. Specifically, between-group t-tests revealed that male smokers reported financial costs associated with smoking influenced their decision to refrain from smoking significantly more than females did (males: $x = 2.84$, $sd = 1.33$, $n = 44$; female: $x = 2.30$, $sd = 1.28$, $n = 113$; $t = 2.35$, $df = 155$, $p<.05$). Motivational differences for not smoking between different developmental periods were nonsignificant.

Chi-square analyses revealed a significant relationship between smoking status and current peers' smoking (chi-square=69.61, df=4, $p<.001$). While 45% of the nonsmokers reported having no current best friends who smoked, this was true of only 5% of the smokers. Similar results were obtained when friends from one year ago were considered (chi-square=57.47, df=4, $p<.001$). For nonsmokers, 37% reported having no best friends one year ago who smoked, and only 9% reported having a majority of best friends one year ago who smoked. Among smokers, only 5% reported having no friends who smoked one year ago, while nearly 50% reported having a majority of close friends who smoke. Separate analyses of the smokers and the nonsmokers revealed that in each group, 71% of the subjects reported having retained the majority of their best friends from the previous year.

Is self-esteem a predictor of smoking behavior?

Between-group t-tests revealed significant differences between low and high self-esteem smokers on one out of the four reasons for smoking. Those with low self-esteem were more likely to report concerns about image as a reason for deciding to smoke than their high self-esteem peers (low self-esteem: $x = 8.06$, $sd = 2.29$, $n = 18$; high: $x = 6.39$, $sd = 2.71$, $n = 23$; $t = 2.09$, $df = 39$, $p<.05$).

Additionally, between-group t-tests revealed significant differences between low and high self-esteem nonsmokers on one out of the eight reasons for not smoking. Those with high self-esteem were more likely to report a history of smoking-related problems as a reason for deciding not to smoke (high self-esteem: $x = 2.88$, $sd = 1.29$,

n = 85; low: x = 2.32, sd = 1.35, n = 72; t = 2.66, df = 155, p<.01). Self-esteem scores did not differ significantly between smokers and nonsmokers.

Multivariate ANOVA performed on the ten individual self-esteem items revealed no significant smoking status differences, and no significant smoking status by sex nor smoking status by developmental period differences. Scores on only one self esteem item ("I feel that I have a number of good qualities") were found to be significantly different for males (x=3.49, s.d.=.56, n=69) and females (x=3.31, s.d.=.61, n=147; F=4.42, df=1/216, p<.05). Only one item, ("I feel that I do not have much to be proud of"), significantly differentiated between high school (x=1.83, s.d.=.94, n=107) and college students (x=1.59, s.d.=.75, n=109; F=4.05, 1/216, df=, p<.05). One significant two-way interaction (Table 4) emerged ("I certainly feel useless at times"). Male high school students scored lower than the other three groups on this item (F=5.68, df=1/216, p<.05).

Table 4: Significant two-way interaction results based on a MANOVA (sex x development period) on responses to the "I certainly feel useless at times" self-esteem item.

| | High School | College |
|---|---|---|
| Male | x = 1.79<br>sd = 0.86<br>n = 43 | x = 2.19<br>sd = .98<br>n = 26 |
| Female | x = 2.14<br>sd = 0.96<br>n = 64 | x = 2.18<br>sd = 0.84<br>n = 83 |

One significant three-way (sex x development period x smoking status) interaction emerged on the "I wish I could have more respect for myself" item (Table 5). Male high school student smokers scored lowest of all groups on this item (F=6.88, df=1/216, p<.01).

Table 5: Significant three-way interaction results based on a MANOVA (sex x development period x smoking status) on responses to the "I wish I could have more respect for myself" self-esteem item.

| | | High School | College |
|---|---|---|---|
| Male | Smoker | x = 1.64<br>sd = 1<br>n = 13 | x = 2.69<br>sd = 0.75<br>n = 13 |
| | Nonsmoker | x = 2.28<br>sd = .99<br>n = 32 | x = 2.00<br>sd = 1<br>n = 13 |

| | | | |
|---|---|---|---|
| Female | Smoker | x = 2.75<br>sd = 1.04<br>n = 8 | x = 2.27<br>sd = 0.96<br>n = 26 |
| | Nonsmoker | x = 2.46<br>sd = 1.08<br>n = 56 | x = 2.51<br>sd = 1.09<br>n = 57 |

## Discussion

Pursuit of relaxation was the principal motivation cited by smokers, followed by the experience of enhanced feelings of competence. The desire to obtain stimulant effects was the next most emphasized motivational factor. Smokers were least likely to report image enhancement as an effect of smoking. These results provide a partial replication of earlier research (Gillard & Bruchon-Schweitzer, 2001; Campbell, et al., 2000; Jenks, 1994; Sarason, et al., 1992). Both the young adult and adolescent samples showed similar patterns of reasons for smoking, demonstrating the generalizability of this earlier work.

It may be informative for students participating in prevention programs to explore the paradox that smokers indulge "to relax" by inhaling a substance that is actually physiologically arousing. While nicotine is pharmacologically a stimulant, most smokers don't realize this, explaining their choice to smoke by emphasizing tobacco's power to relax them. It might deter potential smokers to realize that tobacco does not actually relax a non-addicted person, because it actually increases blood pressure, accelerates heart rate, and often produces jitteriness. Smokers who have become dependent on nicotine experience agitation upon withdrawal, which can be reversed by smoking. It is this alleviation of withdrawal-related "stress" that smokers typically experience as "relaxing". Understanding this paradoxical use of a psychoactive stimulant in order to relax requires a recognition of how easily attributional errors can arise. Smoking generally occurs within a situational context that promotes misattribution of relaxation effects to tobacco and nicotine. Although nicotine itself is pharmacologically stimulating, typically smokers administer this drug by breathing more slowly, and deeply inhaling warm smoke, often while taking a break from stressful activities. The relaxation associated with this is probably more due to the deep breathing, slowed pace, and absence of stressful distractions than to the substances in cigarettes themselves. Similarly, many people report finding drinking hot coffee relaxing, although caffeine itself produces stimulant effects somewhat similar to those of nicotine. Cigarette markets promote such misattributions by describing their product as responsible for pleasurable, relaxed feelings.

The "relaxation" that smokers experience in conjunction with smoking seems primarily to involve cessation of unpleasant withdrawal symptoms. Rather than providing smokers with a valuable means of coping with unwanted anxiety, this substance actually aggravates their baseline level of distress, while tricking them into thinking it has a salutary impact. Informing potential users about the actual pharmacologic stimulant effects of nicotine may reduce smoking if it succeeds in challenging the assumption that this drug is a useful tool for reducing unpleasant arousal.

Although relaxation was reported to be the primary motivating factor responsible for cigarette smoking, stimulation was ranked third, surpassing reports of image concerns. Students who smoke were least likely to report that concerns about image were responsible for their decision to smoke. The failure to find a stronger image motivation may be due to the negligible impact of social factors on the decision to smoke. Alternatively, social desirability factors may have suppressed scores on the image variable within this sample. Sensitivity to social desirability may have made it difficult for participants to admit that their smoking was a means of managing social impressions. However, in actuality, image issues may play a prominent role. The blunt manner in which motivational variables were assessed in this study may have produced substantial social desirability contamination. The ranking of reasons for smoking may simply reflect differences in the social acceptability of the four motivational factors. On the other hand, this study did not simply offer a blunt query about the importance of image, per se. Rather, it assessed the importance of image concerns less directly, through assessment of the subjective effects of smoking on feelings of attractiveness, popularity, and maturity. The fact that smokers did not report as much enhancement of these feelings may stem from how smoking is viewed by others. There is considerable evidence that smokers are increasingly being stigmatized (Venuti, Conroy, Landis & Chambliss, 2000; Hodges, et al., 1999; Jenks, 1994), which may have reduced scores on the items comprising the image variable here.

Social desirability factors may have also led to an underestimate of stimulant effect-seeking among smokers. Students may have been reluctant to report use of cigarettes for achieving stimulant effects, due to the risk of being perceived as addicted. The hurried pace of adolescent and young adult lives may lead many to resort to the use of stimulants, such as nicotine and caffeine. However, their quest for control and autonomy may create reactance when bluntly questioned about their use of cigarettes as a means of obtaining stimulant effects. The fact that high school smokers reported that they used tobacco for stimulant effects significantly more so than college students may be attributable to the heightened sense of independence and autonomous thinking occurring during the college years. Although college students may have greater responsibilities and independence, they may also be more sensitive to items contaminated with the social desirability factor.

Future research might employ even less transparent and subtler means of assessing the role of image concerns and other motivational factors, in order to reduce social desirability responding. The relative stability of close friendships among both smokers and nonsmokers may indicate the covert operation of image management in social smoking. While roughly three-quarters of close friendship circles remained unchanged, smokers belonged predominantly to smoker friendship circles, while nonsmokers belonged predominantly to nonsmoker friendship circles. The relatively unchanging composition of these peer groups suggests that group norms and expectations may influence smoking behavior more than students acknowledge.

If we assume that the observed differences in reported reasons for smoking are valid, and are not simply an artifact of social desirability factors, these findings may be helpful in developing improved educational programs aimed at deterring tobacco use. Correcting the misperception that adding cigarettes will ease one's life may go a long way to reducing initiation of this behavior.

The results from nonsmokers suggest that health concerns represent the strongest reason young people refrain from smoking cigarettes. Several intermediate reasons also influence the decision not to smoke, including fears of getting hooked, disappointing others, compromising athletic performance, and distaste for tobacco. The overarching salience of health concerns among the nonsmoking members of the sample indicates that the message of traditional, health-related anti-smoking campaigns has been effective for at least this segment of the adolescent and young adult population. This finding also suggests the operation of cognitive dissonance within the smoking segment of the population. Perhaps once smoking behavior has developed, cognitive restructuring regarding the dangers associated with cigarette smoking occurs.

The cost of cigarettes was the least significant factor in determining young people's decision not to smoke in this sample. Respondents may have been reluctant to report cost or family problems as motivators for not smoking due to their struggle to appear independent from their family and capable of affording the habit if they chose it. Future research in states with a higher tobacco tax might illuminate whether the present findings were attributable to the fact that this sample was drawn from Pennsylvania, which had the seventh lowest tax rate in the country at the time this data was obtained (31 cents, as compared to New York's rate of $1.50 per pack). As mentioned previously, an investigation of financial considerations on a nationwide level, reported by The Medical Letter on the CDC and FDA (2002, March), supported increased cigarette taxation as a means of decreasing the likelihood and frequency of smoking among current adolescents smokers. The current study's respondents were largely from middle to upper middle class households. The lower cigarette taxation in Pennsylvania, coupled with the relative affluence of this sample may have resulted in the reduced salience of cost concerns. The newly increased tax rate of $1.00 per pack of cigarettes in Pennsylvania may facilitate future research assessing the impact of financial constraints on adolescent smoking.

Low self-esteem smokers were more likely to report smoking as a means of attaining image effects. Low self-esteem smokers may pursue image enhancement more in order to compensate for negative feelings about themselves. For them, smoking may be a means of raising feelings of attraction, popularity, and maturity. This suggests that teaching low self-esteem smokers alternative ways of feeling worthwhile and competent may reduce their reliance on tobacco. Alternatively, it may be that the observed relationship was an artifact of the parallel operation of social desirability responding on both the self-esteem and image measures. Low self-esteem smokers may simply have answered both the self-esteem and image items in a less guarded, more forthright manner.

Male students reported having more good qualities than female respondents, which may have resulted from socialization differences between males and females. Oftentimes, females are told to be modest.

Lastly, college students reported feeling more proud of themselves than high school students. This is probably due to the fact that college students have accomplished more (including, obviously getting into college) than high school students, and therefore may objectively have more achievements of which to be proud.

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